



Malvern | Material relationships



MOLECULAR WEIGHT



MOLECULAR SIZE



MOLECULAR STRUCTURE

VISCOTEK SEC-MALS 20

MORE ANGLES, MORE DATA, MORE CHOICE

INTRODUCING SEC-MALS

The Viscotek SEC-MALS 20 is the most advanced multi-angle light scattering detector for GPC / SEC on the market. It simultaneously measures the intensity of scattering at each angle which, in conjunction with a concentration detector, enables the calculation of the absolute molecular weight of proteins, synthetic & natural polymers, and also molecular size expressed as the radius of gyration, Rg.

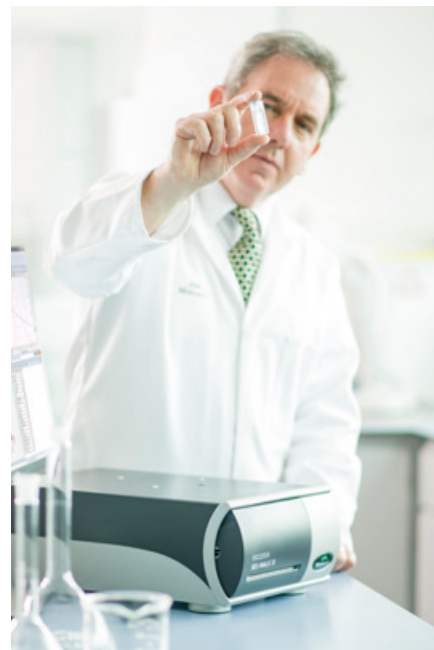
The SEC-MALS 20 is a modular detector that can easily be used with any existing SEC system, adding the power of light scattering detection for molecular weight and size measurements. It can also be purchased as part of a complete system package.

With a high number of measurement angles and also the best performance at lower angles, the SEC-MALS 20 is superior to traditional MALS instruments. This is achieved using a vertical flow cell with radial optics to minimise the detector noise and maximize the sensitivity.

For proteins, SEC-MALS measures the absolute molecular weight independent of column retention volume in order to study oligomeric state and aggregation.

In combination with two concentration detectors, SEC-MALS can also measure the molecular weight of conjugates such as PEGylated and detergent-soluble proteins.

For natural and synthetic polymers MALS provides molecular weight and Rg. It also offers insights into molecular structure through conformation plots of Rg with molecular weight.



Key Benefits

- **Proteins:** Molecular weight, oligomeric state and aggregate characterization
- **Polymers & polysaccharides:** Molecular weight and size distribution
- No column calibration; MW is independent of elution volume
- 20 detectors for improved angular coverage
- Multiple low angle and low noise detectors to improve accuracy
- Single flow cell compatible with all solvent refractive indices
- Vertical flow cell with advanced radial optics for improved performance
- Compatible with any GPC/SEC system



Compatible with any GPC/SEC system, including the Malvern OMNISEC system

The Viscotek SEC-MALS 20 is an advanced light scattering solution for the characterization of all sample types by advanced GPC/SEC



SEC-MALS SPECIFICATIONS

Parameter	Specification
Laser type	Diode
Laser wavelength	660 nm
Laser power	120 mW max, 100 mW to cell
Laser lifetime	>10,000 hours
Number of scattering angles	20
Scattering angle positions	12°, 20°, 28°, 36°, 44°, 52°, 60°, 68°, 76°, 84°, 90°, 100°, 108°, 116°, 124°, 132°, 140°, 148°, 156°, 164°
Cell volume	63 µL
Scattering volume	<7.8 nL
Analogue signals accepted	4 x ±10 V 24 bit
Data acquisition rate	5 Hz
Molecular weight range	<1000 up to >10 ⁷ g/mol*
Molecular weight accuracy	±2% for NIST standard SRM 1478
Radius of gyration range	10 nm – 150 nm*
Limit of quantification	1 µg Polystyrene 105 kDa, 2 µg BSA
Analysis models	Zimm, Berry, Debye
Fit order	1st to 5th
Detector range	4000 mV
Linear range	4000 mV
Baseline noise	<0.05 mV at 90 degrees
Baseline drift	<0.05 mV/hour at 90 degrees
Temperature range	Ambient to 60°C
Voltage	90-250 V, 50/60 Hz
Power usage	60 W
Dimensions	16 cm x 26 cm x 46 cm (h, w, d)
Weight	16.5 kg
21 CFR part 11	OMNISEC software compliant

*Sample dependent



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